



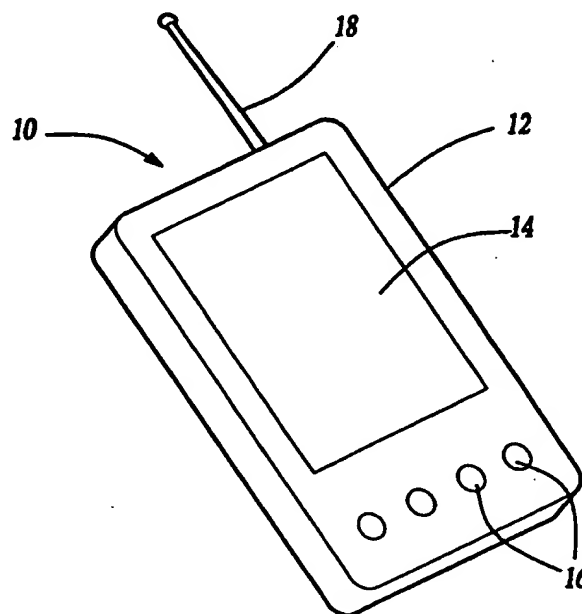
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(21) International Application Number: PCT/US99/16200 (22) International Filing Date: 15 July 1999 (15.07.99) (30) Priority Data: 09/122,043 24 July 1998 (24.07.98) US (71) Applicant: LEAR AUTOMOTIVE DEARBORN, INC. [US/US]; 21557 Telegraph Road, Southfield, MI 48034 (US). (72) Inventor: CHUTORASH, Richard, J.; 3136 Greenspring, Rochester Hills, MI 48309 (US). (74) Agents: QUINN, Christopher, W. et al.; Brooks & Kushman, 22nd floor, 1000 Town Center, Southfield, MI 48075 (US).		(81) Designated States: CA, JP, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i>

(54) Title: INTEGRATED PALMTOP COMPUTER WITH CELLULAR TELEPHONE

(57) Abstract

The inventive integrated communication and computation device includes a computer for altering data in accordance with a predefined set of instructions, a wireless telephone for transmitting outgoing telephone call signals and receiving incoming telephone call signals, a memory for storing data for use by the computer and the telephone, and a single input/output device for inputting control signals to the telephone and the computer and for displaying output from the telephone and the computer. Preferably, the single input/output device consists of a touch screen for inputting telephone keypad signals to the telephone and computer keyboard signals to the computer and for displaying output from the telephone and the computer.



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INTEGRATED PALMTOP COMPUTER WITH CELLULAR TELEPHONE

BACKGROUND OF THE INVENTION

5 This invention relates to an integrated palmtop computer and a cellular telephone.

A palmtop computer, sometimes referred to as a hand-held computer, is a portable personal computer whose size enables it to be held in one hand while
10 being operated with the other hand. Due to recent advancements in technology, the functional capabilities of palmtop computers have expanded dramatically. As a result, many business people routinely use a palmtop computer during their work day. A typical palmtop computer may include a telephone and address book, an appointment calendar, a calculator, and a word processing program.

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Cellular telephones, sometimes referred to as personal communication systems (PCS), provide a convenient way to place and receive telephone calls. A cellular telephone is a wireless radio transmitter and receiver which communicates through any of a number of antenna towers, each serving a particular "cell" within
20 a given region. Over the past decade, the use of cellular phones and the number of cellular antenna towers have dramatically increased. Due to recent advancements in technology, most cellular phones are of a portable, hand-held size. As a result, many business people now routinely carry both a cellular phone and a palmtop computer.

SUMMARY OF THE INVENTION

In a disclosed embodiment of this invention, an integrated communication and computation device includes a computer for altering data in accordance with a predefined set of instructions, a wireless telephone for transmitting
5 outgoing telephone call signals and receiving incoming telephone call signals, a memory for storing data for use by the computer and the telephone, and a single input/output device for inputting control signals to the telephone and the computer and for displaying output from the telephone and the computer.

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In a preferred embodiment of this invention, the single input/output device consists of a touch screen for inputting telephone keypad signals to the telephone and computer keyboard signals to the computer and for displaying output
from the telephone and the computer.

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These and other features of the present invention will be best understood from the following specification and drawings, the following of which is a brief description.

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BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of an integrated communication and computation device in accordance with the present invention.

Figure 2 is an electrical schematic diagram of the integrated communication and computation device.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

5 Figure 1 is a perspective view of an integrated communication and computation device 10 in accordance with the present invention. The integrated communication and computation device 10 includes a housing 12, a single input/output device 14, a plurality of application switches 16, and an antenna 18. For storage purposes, the antenna 18 is preferably short or retractable into the housing 12. The integrated communication and computation device 10 is preferably portable and capable of being held in one hand while being operated by the other hand.

15 Figure 2 is an electrical schematic diagram of the integrated communication and computation device 10. The integrated communication and computation device 10 includes a computer 20 for altering data in accordance with a predefined set of instructions, a wireless telephone 22 for transmitting outgoing telephone call signals and receiving incoming telephone call signals, and a memory 24 for storing data for use by both the computer 20 and the telephone 22. For example, the memory 24 is designed to store data for use by the computer 20, such as an appointment calendar, data for use by the telephone 22, such as the last telephone number dialed, and data for use by both the computer 20 and the telephone 22, such as an address and telephone number list. The telephone numbers, which are entered

into the device 10 by a user, can be accessed by the user in the computer 20 mode or used as "speed dial" information in the telephone 22 mode.

The single input/output device 14 is used to input control signals to the
5 computer 20 and the telephone 22 and display output from the computer 20 and the telephone 22. A microphone 26 converts voice signals into electrical signals and transmits the electrical signals to the computer 20 and the telephone 22. In this manner, the user may employ voice signals to prompt voice activated computer functions or talk to a second telephone party. A speaker 28 converts electrical signals
10 from the computer 20 and the telephone 22 into audible sounds. In this manner, the user may receive audible output from the computer 20 or hear the second telephone party. The antenna 18 is connected to the telephone 22 for broadcasting the outgoing telephone call signals and for receiving the incoming telephone call signals. The plurality of application switches 16 may be programmed to activate a specific
15 computer or telephone function or mode. As examples, the switches 16 could choose between different functions such as computer/telephone, or be used to send telephone calls, end telephone calls, select computer options, etc.

In a preferred embodiment of the present invention, the single
20 input/output device 14 consists of a touch screen, as shown in Figure 1, for inputting computer keyboard signals to the computer 20 and telephone keypad signals to the telephone 22 and for displaying output from the computer 20 and the telephone 22. A Windows CE operating system may be installed in the device 10 to provide both a handwriting recognition system and a pop-up keyboard on the touch screen. In this

manner, the user could either "write" or "type" input control signals to either the computer 20 or the telephone 22 with a stylus. Further, the touch screen is capable of displaying many forms of computer or telephone output, including alpha-numeric characters and icons.

5. **Advantages of the integrated device**

Overall, the integration of a computer 20 and a cellular telephone 22 into a single, portable device 10 reduces part cost, capitalizes upon common features, and increase customer convenience. As should be understood, the components of Figure 2 are located in the housing 12.

10. **Preferred embodiments of this invention**

Preferred embodiments of this invention have been disclosed, however, a worker of ordinary skill in the art would recognize that certain modifications would come within the scope of this invention. For that reason, the following claims should be studied to determine the true scope and content of this invention.

CLAIMS

What is claimed is:

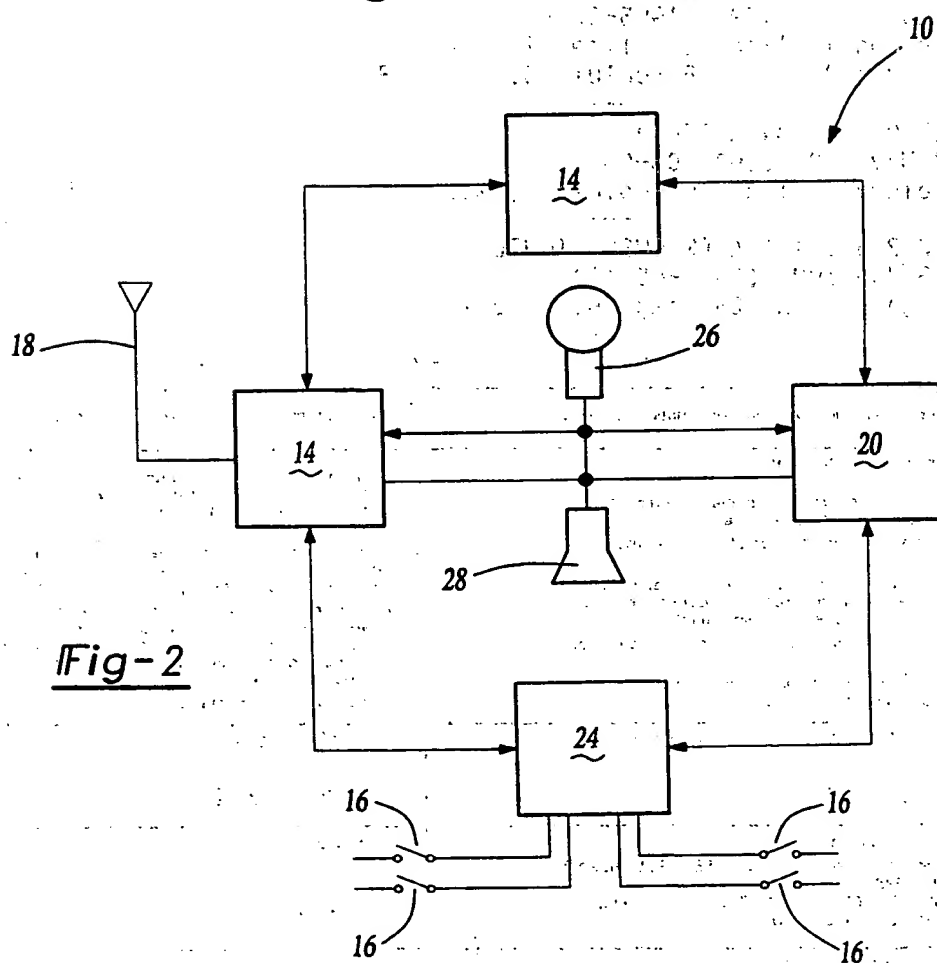
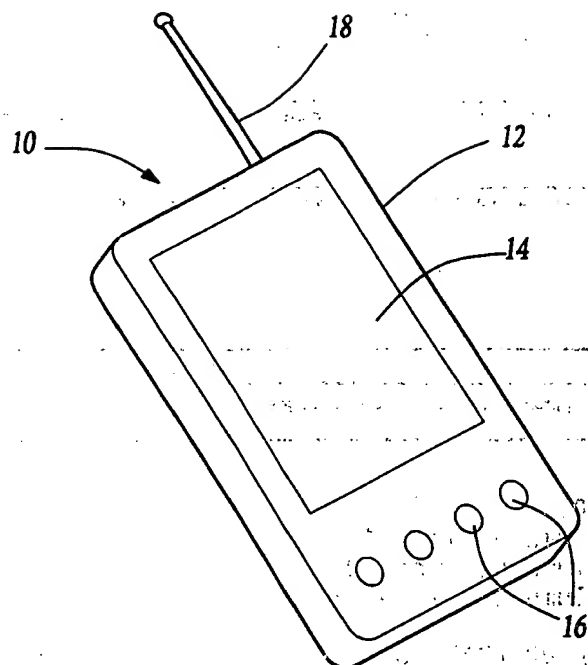
1. A device comprising:
5 a computer for altering data in accordance with a predefined set of instructions;
a wireless telephone for transmitting outgoing telephone call signals and receiving incoming telephone call signals;
a memory for storing data for use by said computer and said
10 telephone; and
a single input/output device for inputting control signals to said computer and said telephone and for displaying output from said computer and said telephone.
- 15 2. A device as set forth in claim 1 wherein said single input/output device consists of a touch screen for inputting computer keyboard signals to said computer and telephone keypad signals to said telephone and for displaying output from said computer and said telephone.
- 20 3. A device as set forth in claim 1 including a microphone for converting voice signals into electrical signals and transmitting said electrical signals to said computer and said telephone.

4. A device as set forth in claim 1 including a speaker for converting electrical signals from said computer and said telephone into audible sounds.

5. A device as set forth in claim 1 including application switches for activating specific computer and telephone functions.

6. A device as set forth in claim 1 wherein said memory includes a telephone number and address data list which is used by both said computer and said telephone.

7. A device as set forth in claim 1 wherein a single housing encloses both said computer and said telephone.



INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/16200

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G06F1/16 H04M1/02 H04M1/27 G06F3/16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G06F H04M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 720 338 A (IBM) 3 July 1996 (1996-07-03) column 2, line 47 -column 4, line 46 column 7, line 25 -column 9, line 10 column 12, line 2 -column 13, line 23	1-7
X	US 5 422 656 A (CANOVA JR FRANCIS J ET AL) 6 June 1995 (1995-06-06) column 1, line 41 - line 62 column 3, line 28 -column 6, line 38	1-7
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X	FR 2 669 131 A (WIDMER MICHEL) 15 May 1992 (1992-05-15) page 1, line 25 -page 5, line 20	1,2,5,7
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Bailas, A

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>EP 0 499 012 A (OPTICAL IMAGING SYST) 19 August 1992 (1992-08-19) column 1, line 53 -column 4, line 54</p>	<p>1-3,5,7</p>

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 99/16200

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